

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number
WO 2005/048515 A3

(51) International Patent Classification⁷: G06F 9/44, 15/00

(72) Inventors; and

(21) International Application Number:

PCT/US2004/037761

(75) Inventors/Applicants (for US only): HORTON, James, A. [US/US]; 4535 Loch Valley Road, New Tripoli, PA 18066 (US). KLEIN, Robert, C., Jr. [US/US]; 212 Saucon View Drive, Bethlehem, PA 18015 (US). GROSS, Geroge, F., Jr. [US/US]; 143 Wwvhill Drive, Fleetwood, PA 19522 (US). FLEMMING, Terry [US/US]; 2195 Stonewall Drive, Macungie, PA 18062 (US). JENKINS, Reynolds, E., Jr. [US/US]; 748 Kennedy Avenue, Mertztown, PA 19539 (US).

(22) International Filing Date:

12 November 2004 (12.11.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(74) Agents: HUSICK, Lawrence, A. et al.; Lipton, Weinberger & Husick, 201 North Jackson Street, P.O. Box 934, Media, PA 19063-0934 (US).

(30) Priority Data:

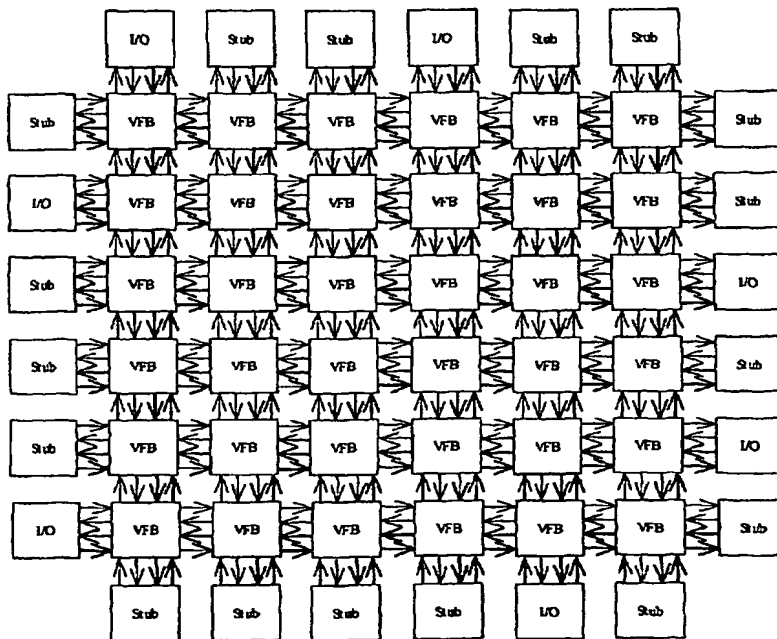
60/519,129 12 November 2003 (12.11.2003) US
60/562,908 16 April 2004 (16.04.2004) US

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

(71) Applicant (for all designated States except US): GATE-CHANGE TECHNOLOGIES, INC. [US/US]; 115 Research Drive, Bethlehem, PA 18015 (US).

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR MESSAGE PASSING FABRIC IN A MODULAR PROCESSOR ARCHITECTURE



(57) Abstract: The invention provides a system and method of providing a message passing fabric in a modular processing system where a plurality of processing elements (VFBs), access other available processing elements to provide a message passing fabric where the fabric asynchronously establishes routes for synchronous messages from an origin processing element to a destination processing element to permit an operation to occur at the destination processing element in a flexible, efficient, self-routing and real-time dynamically optimized manner.

Messenger Interconnected Processor Array

WO 2005/048515 A3



MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

- *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) **Date of publication of the international search report:**

6 October 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.